

**Notice of Allowability**

Application No.

09/577,657

Examiner

Anne R. Kubelik

Applicant(s)

MIZUNO ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to response filed 12/9/04.
2. ☒ The allowed claim(s) is/are 33,38,39,41,43,45,47 and 49-52, renumbered 1, 5, 2-4, 7-11 and 6, respectively.
3. ☒ The drawings filed on 11/21/03 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                      |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance                        |
|   | 9. <input type="checkbox"/> Other _____  |

*Examiner's Amendment*

1. An extension of time under 37 CFR 1.136(a) is required in order to make an examiner's amendment that places this application in condition for allowance. During a telephone conversation conducted on 7 January 2005, Erin Dunston requested an extension of time for 1 MONTH(S) and authorized the Commissioner to charge Deposit Account No. 02-4800 the required fee of \$120 for this extension and authorized the following examiner's amendment. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

## IN THE CLAIMS:

Claim 33 (Currently Amended) An isolated DNA molecule comprising a nucleotide sequence encoding the N-methyl transferase of SEQ ID NO:1 and having the N-methyl transferase enzyme activities of 7-methylxanthine N3-methyl transferase, theobromine N1-methyl transferase, and paraxanthine N3-methyl transferase, wherein said isolated DNA molecule consists of SEQ ID NO:2.

Claim 38 (Currently Amended). An isolated RNA molecule comprising a nucleotide sequence encoding the N-methyl transferase of SEQ ID NO:1 and having the N-methyl transferase enzyme activities of 7-methylxanthine N3-methyl transferase, theobromine N1-methyl transferase, and paraxanthine N3-methyl transferase, wherein said isolated RNA molecule consists of SEQ ID NO:3.

Claim 39 (Currently Amended). An expression vector comprising the DNA molecule of claim 33 ~~and operably linked to a plant promoter~~, wherein said vector expresses N-methyl transferase in plant cells.

Claim 43 (Currently Amended). ~~An expression~~ The vector comprising the DNA molecule of claim 33 operably linked to a promoter that functions in a ~~of claim 41, wherein said vector expresses an N-methyl transferase with 7-methylxanthine N3-methyl transferase, theobromine N1-methyl transferase, and paraxanthine N3-methyl transferase activities in cells of at least one microorganism, wherein said vector expresses N-methyl transferase in the~~ microorganism or plant.

Claim 49 (Currently Amended). A method for producing a plant secondary metabolite, ~~selected from the group consisting of 7-methyl xanthine, paraxanthine, theobromine, and caffeine~~ wherein said method comprises:

culturing the transformed plant cell or plant tissue of claim 45 to form a plant body, and  
culturing said plant body to produce a plant secondary metabolite selected from the group consisting of 7-methyl xanthine, paraxanthine, theobromine, and caffeine,  
wherein said plant cell or plant tissue is a Camellia or a Coffea plant cell or plant tissue.

Claim 50 (Currently Amended). A method for modifying the concentration of caffeine in a cell, wherein said method comprises:

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culturing said plant cell or plant tissue of claim 45 to form a plant body, and  
culturing said plant body to modify the concentration of caffeine,  
wherein said plant cell or plant tissue is a Camellia or a Coffea plant cell or plant tissue.

Claim 51 (Currently Amended). ~~The method of claim 49, wherein a transformed whole plant is cultured~~ A method for producing a plant secondary metabolite, wherein said method comprises

culturing the transformed whole plant of claim 45 to produce a plant secondary metabolite selected from the group consisting of 7-methyl xanthine, paraxanthine, theobromine, and caffeine,

wherein said plant is a Camellia or a Coffea plant.

IN THE TITLE:

CAMELLIA SINENSIS GENE ENCODING A CAFFEINE SYNTHESIS SYSTEM  
ASSOCIATED N-METHYL TRANSFERASE WITH 7-METHYLBXANTHINE N3 METHYL  
TRANSFERASE, THEOBROMINE N1 METHYL TRANSFERASE, AND PARAXANTHINE  
N3 METHYL TRANSFERASE ACTIVITIES ENZYME AND USE THEREOF

IN THE ABSTRACT:

The present invention makes it possible to efficiently produce an N-methyl transferase  
with 7-methylxanthine N3 methyl transferase, theobromine N1 methyl transferase, and  
paraxanthine N3 methyl transferase activities that can be utilized as an industrial, food, or

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medical enzyme. In addition, the present invention makes it possible to modify a the caffeine biosynthesis metabolism of caffeine ~~productive~~ producing plants, plant tissues, or plant cells, thereby efficiently producing caffeine metabolism based compounds or ~~Further, the present invention makes it possible to modify a caffeine biosynthesis metabolism of caffeine productive plants, plant tissues, or plant cells, thereby~~ modifying a the production rate of a caffeine metabolism-based compound group in the plants.

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anne R. Kubelik, whose telephone number is (571) 272-0801. The examiner can normally be reached Monday through Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson, can be reached at (571) 272-0804. The central fax number for official correspondence is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Anne R. Kubelik, Ph.D.  
January 7, 2005



ANNE KUBELIK  
PATENT EXAMINER